

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) An airborne~~Airborne~~ radar device (1) comprising at least two antennas (2,3) and clutter-suppressing means (4), the radar device being arranged to send out, via the antennas (2,3), radar pulses focused in main lobes (5) and the antennas (2,3) are arranged to receive reflected radar pulses, the antennas (2,3) being separated from each other vertically, the radar device (1) comprising means (6) for transforming the received radar pulses into complex video signals in the form of sequences of bins (R_k), the video signals being represented in a first channel (K_1) and a second channel (K_2), characterized in that the clutter-suppressing means (4) is arranged in such a way that the clutter component (e_c) of a certain bin (R_k) in the first channel (K_1) is also found in the second channel (K_2) multiplied by a complex constant ($C(R_k)$), where the complex constant ($C(R_k)$) is the quotient between the complex antenna gain of the second channel (K_2) and of the first channel in the direction of the ground for the current bin (R_k), the clutter-suppressing means (4) being arranged to estimate a complex constant ($\hat{C}(R_k)$) which describes how the signals from the receiver antennas are weighted together separately for each bin (R_k) when the resultant video output signal (Ψ) is formed, the estimated constant ($\hat{C}(R_k)$) being intended to suppress the clutter component (e_c) in the resultant video output signal (Ψ) by subtraction of the second channel (K_2) from the first channel (K_1) multiplied by the estimated constant ($\hat{C}(R_k)$).

2. (Currently Amended) A radar device according to Claim 1, characterized in that the radar device comprises means for representing the video signal from the first antenna ~~(2)~~ in the first channel (K_1) and means for representing the video signal from the second antenna ~~(3)~~ in the second channel (K_2).

3. (Currently Amended) A radar device according to Claim 1, ~~characterized in that the radar device comprises~~ further comprising means for summing the signals from pairs of antennas included in the radar system in the second channel (K_2) and means for forming the difference between the signals from pairs of antennas included in the radar system in the first channel (K_1).

4. (Currently Amended) Radar device according to ~~any of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the clutter-suppressing means ~~(4)~~ is set up for estimating the complex constant ($\hat{C}(R_k)$) by utilizing the values from range bins in the vicinity of the current range bin ($\hat{C}(R_k)$).

5. (Currently Amended) ~~Radar~~ A radar device according to ~~any of the preceding claims~~ claim 1, ~~characterized in that~~ wherein the clutter-suppressing means ~~(4)~~ is set up for estimating the complex constant ($\hat{C}(R_k)$) by adapting a polynomial of degree "m" with coefficients " c_m ", wherein the polynomial describes variations over a number of bins centered around the current bin.

6. (currently amended) ~~Radar~~ A radar device according to Claim 5, characterized in that wherein the clutter-suppressing means (4) is set up for determining the coefficients of the polynomial by means of the method of least squares.

7. (Currently Amended) ~~A Radar~~ radar device according to ~~any of the preceding claims~~ claim 1, characterized ~~wherein~~ in that the clutter-suppressing means (4) is set up for suppressing clutter without coherence between different pulses sent out.

8. (Currently Amended) ~~A Radar~~ radar device according to ~~any of the preceding claims~~ claim 1, characterized in that wherein the antennas (2,3) are rolled by $\pm 15^\circ$ maximum relative to the ground plane.

9. (Currently Amended) ~~A Method~~ method for suppressing ground clutter, comprising:
the ~~joint~~ jointly sending out of a focussed radar pulse in the form of a main lobe (5) from at least two antennas (2,3) separated from each other vertically, and
receiving reflected radar pulses by the antennas (2,3),
~~comprising the conversion of~~ converting the received radar pulses into complex video signals in the form of a number of bins (R_k), the video signals being represented in a first channel (K_1) and a second channel (K_2), characterized in that the method comprising:

[[-]] transmitting a clutter component (e_c) multiplied by a complex constant ($C(R_k)$) for a certain bin (R_k) ~~is transmitted~~ in the second channel (K_2), where the

complex constant ($C(R_k)$) is the quotient between the second channel (K_2) and the complex antenna gain of the first channel (K_1) in the direction of the ground for the current bin (R_k),

[[~~-~~]] transmitting the clutter component (e_c) for a certain bin (R_k) is ~~transmitted~~ in the first channel (K_1),

[[~~-~~]] estimating a complex constant ($\hat{C}(R_k)$) is ~~estimated~~ by weighting together the signals from the antennas separately for each bin (R_k) when forming a resultant video output signal (Ψ),

[[~~-~~]] multiplying the estimated constant ($\hat{C}(R_k)$) is ~~multiplied~~ by the first channel (K_1),

[[~~-~~]] in the resultant video output signal (Ψ), subtracting the second channel (K_2) is ~~subtracted~~ from the first channel (K_1) multiplied by the estimated constant ($\hat{C}(R_k)$), which gives rise to the clutter component (e_c) being suppressed in the resultant video output signal (Ψ).

10. (Currently Amended) ~~The Method~~ method according to Claim 9, characterized in that wherein the method represents the video signal from the first antenna ~~(2)~~ in the first channel (K_1) and the video signal from the second antenna ~~(3)~~ in the second channel (K_2).

11. (Currently Amended) ~~Method~~ The method according to Claim 9, characterized in that ~~the method comprises~~ further comprising the summing of the signals from pairs of

antennas included in the radar system in the second channel (K_2) and subtracting the signals from antenna pairs included in the radar system in the first channel (K_1).

12. (currently amended) ~~Method~~ The method according to any of Claims 9-11 Claim 9, characterized in that this wherein the step of estimating ~~estimation of the estimated~~ constant ($\hat{C}(R_k)$) comprises the following steps:

[[-]] ~~selection of~~ selecting a polynomial of degree M with a number of complex constants (c_m),

[[-]] ~~estimation of~~ estimating the complex constants (c_m) by the method of least squares and the values from a number of bins in the main lobe, which polynomial has the following appearance:

$$\hat{C}(R_k) = \sum_0^M c_m R_k^m$$

13. (currently amended) ~~Method~~ The method according to any of Claims 9-12 Claim 9, characterized in that wherein the method suppresses clutter independently of the coherence between the pulses.

14. (currently amended) ~~Method~~ The method according to any of Claims 9-13 Claim 9, characterized in that ~~the method comprises the~~ further comprising sending out and receiving of pulses from antennas which are rolled by $\pm 15^\circ$ maximum relative to the ground plane.

15. (currently amended) ~~Method~~ The method according to any of Claims 9-14 Claim
9, ~~characterized in that the method further comprises comprising~~ the sending out and
receiving of pulses from a radar device which is airborne.